

# FOLDING BOOKCASE

## Cross Reference to Related Applications

[0001] This application is non-provisional filing claiming benefit under 35 U.S.C. Section 119(e) of provisional U.S. Patent Application No. 60/429,613 filed 11/27/2002, entitled "Folding Bookcase."

## Background of the Invention

[0002] The present invention relates in general to bookcases and the like used for storing books, files, or other items, and more specifically to a bookcase which can be folded and easily transported from one location to another.

[0003] The cost and ease of transporting furniture are major factors in today's marketplace. Many young consumers need furniture easily adaptable to their lifestyle. Students in apartments or dormitories change location frequently and need furniture adaptable to their changing locations.

[0004] The manufacture of furniture designed such that it can be easily converted to a compact form and moved from one location to another in a manner that avoids moving vans and cumbersome transporting logistics gives the manufacturer a major marketing advantage. Students need the flexibility to handle moves of furniture with the least amount of cost and effort. Thus, the manufacture of pieces of furniture, which can be folded up and transported by one individual rather than by two or three, has a major advantage in the market place since the typical student does not have adequate means for getting an already assembled bookcase to their dorm room or apartment. Further, this problem is encountered every time the student must move the bookcase, e.g. to another dorm room, apartment, or back home at the end of the year.

[0005] The size of furniture is a contributing factor in its cost. A large non-folding pre-assembled bookcase is typically going to cost much more to package and ship than would be the

case with a folding bookcase, which upon unpacking can be unfolded into its full size. The same economics as in unassembled furniture can be realized with a folded pre-assembled bookcase.

[0006] Consumers tend to dislike furniture marketed as “easily assembled.” Unassembled furniture requires some mechanical skill and tools to assemble properly. Frequently the instructions are poorly written, sometimes by writers in foreign countries where English is not their native language. The instructions often tend to leave a lot to the imagination. Sometimes the necessary assembly elements are missing and frustrate the buyer who wants the furniture assembled immediately. Unassembled furniture has the advantage, however, of being easily transported from the manufacturer/distributor to the end-user. Bookcases are usually purchased by students unassembled and need considerable time, tools, and effort for assembly. As a rule, students do not possess an abundance of any of these needs. Further, once such a bookcase has been assembled, if it becomes necessary to move it from one location to another, it must be broken down and disassembled for ease in moving and thus is not easily moveable from one location to another. The present invention directed to a foldable bookcase allows for the advantages of unassembled furniture without any of its disadvantages as mentioned above.

[0007] One objective of the invention is to provide a foldable bookcase which when unfolded and ready for use is self-supporting.

[0008] Another objective of the invention bookcase is to provide a foldable bookcase that is relatively lightweight in structure yet when unfolded and ready for use will accommodate within a limited space various size books or other articles.

[0009] Other objectives and advantages will become apparent from the description and drawings or may be learned by use of the invention bookcase.

## **Summary of the Invention**

[0010] To achieve the forgoing objectives, the invention provides a bookcase that can be purchased in an assembled form, yet when necessary can be folded into a more compact form for

movement from one location to another. The folding bookcase, of the present invention, has a pair of opposed planar side members between which, when the bookcase is unfolded and ready for use, a predetermined plurality of planar shelves are mounted and restrained from movement. The shelves may be of different depth. One embodiment of the invention has shelves of descending order, larger in depth at the bottom than at the top. The progression in the increase in depth from the top shelf to the bottom shelf may be gradual. This embodiment, with shelving of different depth, allows for the storage of heavier and/or larger objects at the bottom of the bookcase, thereby adding to the stability of the bookcase.

[0011] The opposed planar side members may or may not be sized so as to be similar in width to the depth of the shelves. In one embodiment the opposed side members are of the same width at the top as at the bottom. In another embodiment the opposed side members are tapered such that the width of the two opposed side members at the top is smaller than the width of the two opposed side members at the bottom. Such taper may permit greater stability in the bookcase with a larger base than top.

[0012] The bookcase is formed so it is foldable, by means of at least one pair of hinges, into at least two distinct sections. When folded, the individual shelves of one section are staggered with respect to the individual shelves of the other section such that the individual shelves of the respective sections when folded miss each other due to their spacing. The staggered shelving can be oriented such that the lower shelves have a larger spacing between the shelves than do the top shelves. This embodiment allows for heavier and/or larger objects to be stored on the bottom shelves, thereby adding to the stability of the bookcase.

[0013] The bookcase may be attached at the top of the bookcase to the wall via at least one bracket or hook.

[0014] Further, the bookcase may be made of a variety of different materials including wood and plastic.

## Brief Description of the Drawings

[0015] In order that the invention will become more clearly understood it will be disclosed in greater detail with reference to the accompanying drawings, in which:

[0016] Figure 1 is a perspective view of a folding bookcase unfolded and ready for use according to a first embodiment of the invention.

[0017] Figure 2 is a side elevation view of the folding bookcase of Figure 1.

[0018] Figure 3 is a side elevation view of the folding bookcase of Figures 1 and 2 but with the bookcase in a folded, storable or moving configuration.

[0019] Figure 4 is a reduced scale, side elevation view of a second embodiment of the folding bookcase of the invention.

[0020] Figure 5 is a fragmentary side elevation view of a third embodiment wherein a wall bracket is employed for attaching the folding bookcase to a wall.

[0021] Figure 6 is a fragmentary front elevation view of the Figure 5 third embodiment.

## Description of the Preferred Embodiment

[0022] Figure 1 shows a foldable bookcase 10 according to the present invention in an open, useable position, i.e. positioned at an angle against a vertical wall 11 (dashed lines) while resting on a horizontal floor 12 (dashed lines). Figures 1 through 3 illustrate the preferred and first embodiment of the invention. Foldable bookcase 10 comprises a lower pair of side boards shown as planar side members 15a, 15b and an upper pair of side boards shown as planar side members 25a, 25b. The planar side members are of predetermined length, width and thickness. Shelf boards shown as planar shelves 16a, 16b and 16c along with planar side members 15a, 15b when assembled make up a first integral unit 10a. Likewise, the shelf boards shown as planar

shelves 26a, 26b, 26c and 26d along with planar side members 25a and 25b when assembled make up a second integral unit 10b. The planar shelves are of predetermined length, width and thickness.

[0023] First integral unit 10a and second integral unit 10b are joined together by hinges 30a and 30b as best seen in Figure 1. When assembled, hinges 30a and 30b allow first integral unit 10a and second integral unit 10b to pivot about the respective pins of hinges 30a, 30b. When desired for storage or moving, foldable bookcase 10 can be folded into the position illustrated in Figure 3. Planar shelves 16a, 16b, 16c and 26a, 26b, 26c, 26d are located and spaced apart in their respective integral units 10a and 10b so that when the units are folded, the respective planar shelves do not touch each other or interfere with the folding of bookcase 10. When so folded, as seen in Figure 3, the planar shelves are contained within the limits of the respective planar side members 15a, 15b and 25a, 25b and bookcase 10 is in a form in which it can be easily picked up and moved to another location or stored for future use.

[0024] As seen in Figures 1 through 3, this first embodiment of folding bookcase 10 provides for the front surfaces of the planar shelves to remain essentially flush with the front surfaces of planar side members 15a, 15b, 25a and 25b while the backs of certain of the planar shelves, since they are of different depths, extend rearwardly behind bookcase 10 in the space between bookcase 10 and wall 11. As best seen in Figure 2, planar shelves 16a, 16b, 16c and 26a, 26b, 26c, 26d are preferably all of different widths and of increasingly less width towards the top of bookcase 10 so as not to touch or bump wall 11.

[0025] While not shown, the wooden planar shelves and planar side members of the preferred embodiment may be permanently assembled together by suitable nails, screws, glue, or dovetail joints in combination with nails, screws and glue. Other permanent or detachable means of connecting the shelf boards, i.e. the planar shelves, to the side boards, i.e., the planar side members, as employed in the furniture industry for bookcases and the like could be employed and would be within the scope of and applicable to the present invention. It is also recognized that the planar shelves and planar side members may be made of plastic or other material, which may or may not necessitate such assembly but may be injection molded together.

[0026] A second embodiment of the invention referenced as bookcase 10' is illustrated in reduced scale in Figure 4 wherein planar side members 35a, 35b (not shown), 45a and 45b (not shown) are tapered from the bottom upward which provides the bookcase with a more finished or aesthetic appearance. Also, the tops of the planar side members, which rest against the wall 11, may be rounded, as illustrated, which also adds to the aesthetic appearance of the bookcase.

[0027] A further third embodiment, referred to as bookcase 10'', is illustrated in Figures 5 and 6 wherein a wall bracket or mount 40 is pivotally attached to the top most planar shelf of either bookcase 10, 10', or 10'' by a screw 41 and may be utilized for fixedly securing bookcase 10, 10', or 10'' to wall 11 by a screw 42.

[0028] The above detailed description of a preferred embodiment of the invention sets forth the best mode contemplated by the inventor for carrying out the invention at the time of filing this application and is provided by way of example and not as a limitation. Additionally alternative embodiments are also described. Accordingly, various modifications and variations obvious to a person of ordinary skill in the art to which it pertains are deemed to lie within the scope and spirit of the invention as set forth in the following claims.